89 Where in the Solar System Am I?

Planets have many features in common. For example, all planets are spherically shaped and each orbits a star. But each planet in our Solar System also has many other characteristics that make it different from the others.

Imagine that sometime in the future, people travel to all the planets in the Solar System. Imagine you are living in this time, and some of your friends are away on trips into outer space. You have received messages from your friends on other planets, but there is a problem with some of them. Four of your friends forgot to say what planet they are visiting.

CHALLENGE

What features make each planet unique?

MATERIALS

For each student

1 **Student Sheet 89.1, "Planet Information"**

PROCEDURE

1. Read the four messages from space shown on the next page.
2. Choose one of the messages and carefully compare the descriptions in it with the information provided on Student Sheet 89.1, "Planet Information."
3. With your partner, decide which planet that message was sent from.
4. In your science notebook:
   - Record the name of the person who sent the message and the name of the planet he or she was visiting.
   - List the evidence in the message that helped you decide which planet the message came from.
5. Repeat Steps 2–4 for the other three messages.

ANALYSIS

1. Write a message from a planet in our Solar System other than the ones already used in the four messages presented in this activity. In your message describe several features that would help someone else identify the planet.

Interplanetary Message

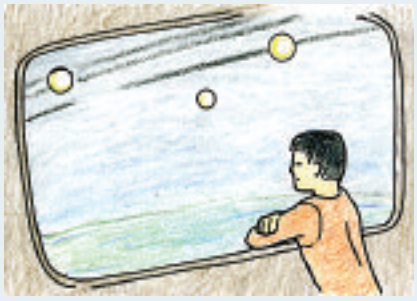
The temperature is so extreme here! During the day, the Sun looks huge and bright, and so it's very, very hot outside. When it is night, it gets really, really cold. Nighttime is always pitch black because there is no Moon. I guess it is kind of like living at the North or South Pole during summer or winter. There are no clouds, wind, or any kind of weather. Thank goodness we brought our own oxygen so we can breathe. I'm glad I brought my space hiking books because there are lots of large craters, kind of like the Moon. I visited one yesterday that is the size of Texas!

Kayla

Interplanetary Message

I can't believe I finally got here! It took close to 10 years to make the trip. I'm glad to be here during this planet's summer, but it's still below –130°C. And, because the planet is tipped on its side, the Sun doesn't shine at all in winter, which lasts more than 7,500 Earth days. The Sun is shining now, but it's not very big, bright, or warm. I'm not sure how long I'll be here, because one year on this planet takes a lifetime, but it's weird because one day is so short.

Not having a solid surface to walk on is kind of tricky, so I spend most of my time on the spacecraft. They say there are a bunch of moons, but I've only seen five. I think the others must be pretty small. I can see some faint gray lines that go all the way across the sky. I'm not sure what they are—I'll have to keep looking.



Ronin

Interplanetary Message

There is so much iron here! The other day, I made the mistake of getting caught in a dust storm. The red dust coming off all the rocks completely blocked my view, and I was lost for a while. The day length is similar to back home, but even in the summer it is still cold. It's like Earth's South Pole in winter, but there is no snow. There is a lot of trash and equipment from previous explorations. It was quite a quick trip here, so I'll be home soon.

Len

P.S. I forgot to tell you that it's kind of spooky having more than one moon zipping across the sky.

Interplanetary Message

This place is so bizarre because it has no solid surface! It is a huge ball of gas, and our space hotel hovers above it. Going out for a walk is certainly not an option. We saw this place that has a huge red hurricane almost three times the size of Earth. It has 400 mph winds that have been blowing for centuries. That's over twice the speed of the winds from the strongest hurricanes on Earth. The atmosphere is constantly swirling and has a lot of hydrogen and helium.

Last night I saw four big moons, which are easy to see, and many little ones that I can't tell apart. It's easy to stay up all night long to watch them because a full night is only about 5 hours long. The daylight time is only 5 hours long, too, so a full day lasts only 10 hours. I can also see a few faint rings when I look out into the sky during the day.

Eva